Product Catalogue 2008

Solutions for laboratory, pilot plant and cGMP production

ABER™ INSTRUMENTS

www.aberinstruments.com

CONTENTS

The Product Catalogue shows the majority of products and accessories available from Aber Instruments in biotechnology applications. There is a detailed section on probe options including top-entry and side entry probes in a range of sizes with options for FDA certification and a comparison of the technical specifications of the full range of Aber Biomass Monitor systems.

Part numbers, materials and specifications are subject to change and the product catalogue should be used as a guide. Users should obtain the latest product information from either Aber Instruments or the local distributor.

	Page
Instruments	
BM200	3
BM200 Panel mount	4
BM220	5
BM230	6
LCA920	7
Probes	
Probes	8
12mm Probes	9
25mm Probes	10
Tri-clamp Probes	11
Port Adaptors	12
Probe Testers	13
Validation	
Validation Certification	14
Software	
Aber Scan Software	15
AberLog Gold Software	15
Extension Cables	16
Spare Parts	17
Head Amplifiers	17
Probe Simulator	17
Ground Straps	17
Retaining Ring	17
Phoenix Connectors	17
Manuals	18
Other spares	18
Instrument Technical Specifications	19

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

In 2006 Aber Instruments introduced their latest innovation into the market with the Biomass Monitor 200.

This new version is in response to the demand in the industry for a lower cost unit that is simple to use, flexible with communications and that will meet the strict validation requirements of the manufacturing process including GAMP4 compliance.

In addition to the usual options for communications the instrument has a USB port for connection to a PC together with Aber data logging software (Aber workbench 200).

System includes

Biomass Monitor 200 Lab version :

2900-20 — Biomass Monitor 200, single channel, probes ordered separately
2900-00 — Biomass Monitor 200
2300-00 — Head Amplifier with 2 metre cable
2350-00 — Probe Simulator
124*-06 — Mains lead (*Country specific)
2900-09 — Biomass Monitor 200 User Manual
1015-02 — 25mm probe retaining ring (if 25mm probe supplied)

Software, phoenix connector and USB lead

- Measures live biomass ON-LINE
- Dedicated to a single bioreactor
- Perfect for Cell Culture, microbial, bacteria and plant cells
- Compact and simple to evaluate and use
- Designed to GAMP4
- IQ/OQ documentation (optional)

Options

For probe types	see pages 8-11
For Validation options Part number 2900-62	see page 14
For extension cables	see page 16

Profibus and devicenet, other options available on request

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

BM 200 Panel Mount

Launched in 2007, the panel mount version of the Biomass Monitor 200 is dedicated to cGMP.

The Biomass Monitor Model 200 was produced in response to the demand in the industry for a lower cost unit that is simple to use, flexible with communications and that will also meet the strict validation requirements of the manufacturing process including GAMP 4 compliance. The unit is designed to be dedicated to single bioreactor (ideal for cGMP) and overcomes the inconvenience of running multiple cables to bioreactors. These new features combine to make the BM200 the most customer orientated device for live cell mass monitoring.

System includes

2920-20 — Biomass Monitor 200 Panel mount, single channel, probes ordered separately
2920-00 — Biomass Monitor 200
2300-00 — Head Amplifier with 2 metre cable
2350-00 — Probe Simulator
124*-06 — Mains lead (*Country specific)
2900-09 — Biomass Monitor 200 User Manual
1015-02 — 25mm probe retaining ring (if 25mm probe supplied)
Software, Phoenix connector and USB lead

- Measures live biomass ON-LINE
- Dedicated to a single bioreactor
- Perfect for Cell Culture, microbial, bacteria and plant cells
- Front protected to IP65
- Designed to GAMP4
- IQ/OQ documentation (optional)
- Ideal for cGMP production

Options

For probe types	see pages 8-11
For Validation options Part number 2900-62	see page 14
For extension cables	see page 16
Profibus and devicenet, other options available on request	

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

The Biomass Monitor 220 combines the latest advances in radio-frequency dielectrics with an integrated software programme that allows both live cell mass monitoring (or control) as well as radio-frequency scanning.

The model 220 has an integral multiplexer allowing up to 4 fermentors to be monitored; to expand the system you simply add an extra Head Amplifier(s) and probe(s) as all the additional electronics are built in.

The frequency scanning option can provide additional information on the metabolic state of the culture, this makes the instrument ideal for operation in research or process control.

A single channel only version, the Biomass Monitor 210 is also available.

Biomass Monitor 210 System includes

2400—20 — Biomass Monitor 210, single channel, probes ordered separately
2200-00 — Biomass Monitor 210
2300-00 — Head Amplifier with 2 metre cable
2350-00 — Probe Simulator
124*-06 — Mains lead (*Country specific)
2400-09 — Biomass Monitor 210 User Manual
1015-02 — 25mm probe retaining ring (if 25mm probe supplied)

Biomass Monitor 220 System includes

2200-20/## — Biomass Monitor 220, 4 input, single channel, probes ordered separately
2200-00 — Biomass Monitor 220
2300-00 — Head Amplifier with 2 metre cable
2350-00 — Probe Simulator
124*-06 — Mains lead (*Country specific)
2200-09 — Biomass Monitor 220 User Manual
1015-02 — 25mm probe retaining ring (if 25mm probe supplied)

Where ## indicates the number of channels required, this is also the number of Head Amplifiers that will be provided with the system.

- Measures live biomass ON-LINE and can be expanded for up to 4 bioreactors
- Perfect for Cell Culture, microbial, bacteria and plant cells
- Frequency Scanning
- Ideal for research and process development

Options

For probe types	see pages 8-11
For Validation options	see page 14
BM 210 Part number: 2400-62	
BM 220 Part number: 2200-62	
For AberScan software	see page 15
For AberLog Gold software	see page 15
For extension cables	see page 16

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

The Biomass Monitor 230 has been designed for use in a production environment. To ensure simplicity of use there are minimum set-up options with password protection for cGMP.

The instrument is enclosed within an IP65 stainless steel cabinet so there are no additional enclosure costs. It has an integral multiplexor and like the model BM220 can be used with up to 4 probes. The model 230 has been widely used in cGMP by the major Biopharma companies.

The system can also be supplied with a profibus module.

System includes

2700-20/## — Biomass Monitor 230, 1 input, 4 channel, probes ordered separately
2700-00 — Biomass Monitor 230
2300-00 — Head Amplifier with 2 metre cable
2350-00 — Probe Simulator
2700-09 — Biomass Monitor 230 User Manual
1015-02 — 25mm probe retaining ring (if 25mm probe supplied)

Where ## indicates the number of channels required, this is also the number of Head Amplifiers that will be provided with the system.

Profibus option please order with system part number 2700-30

- Measures live biomass ON-LINE and can be expanded for up to 4 bioreactors
- Suitable for animal, yeast, filamentous fungi, bacteria and plant cells
- Robust within an IP65 enclosure, ideal for pilot plant or production
- Ideal for cGMP and can be provided with full IQ/OQ documentation (optional)

Options

For probe types	see pages 8-11
For Validation options Part number 2700-62	see page 14
For extension cables	see page 16
For AberLog Gold software	see page 15

Profibus and devicenet, other options available on request

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Live Cell Analyser 920

The Live Cell Analyser 920 is quite unique in allowing the live cell concentration to be measured on-line, and at the same time it can be used to measure off-line samples. The sample chamber is 10ml with a stirrer and temperature control to provide optimum conditions for the culture. Ideal for busy laboratories and for measuring highly clumped cells or for cells attached to carriers.

The Live Cell Analyser 920 on-line and off-line system includes

9200-20 — Live Cell Analyser 920, off-line and on-line, probes ordered separately
9200-09 — Live Cell Analyser 920 User Manual
2300-00 — Head Amplifier with 2 metre cable
2350-00 — Probe Simulator
124*-06 — Mains lead (*Country specific)
8091-06 — Wash Bottle
1901-06 — 1-10ml Pipette
8039-15 — Drain tube assembly

The Live Cell Analyser Off-line only System includes

9200-00 — Live Cell Analyser 920, off-line only
9200-09 — Live Cell Analyser 920 User Manual
124*-06 — Mains lead (*Country specific)
8091-06 — Wash Bottle
1901-06 — 1-10ml Pipette
8039-15 — Drain tube assembly

- Measures live biomass in samples and ON-LINE
- Suitable for animal, yeast, filamentous fungi, bacteria and plant cells
- Simple to use and no need to add dyes or dilute samples
- Saves valuable laboratory time for counting cells

Options

For probe types	see pages 8-11
For Validation options Part number 2900-62	see page 14
For extension cables	see page 16
For AberScan software	see page 15
For AberLog Gold software	see page 15

ABER™ INSTRUMENTS

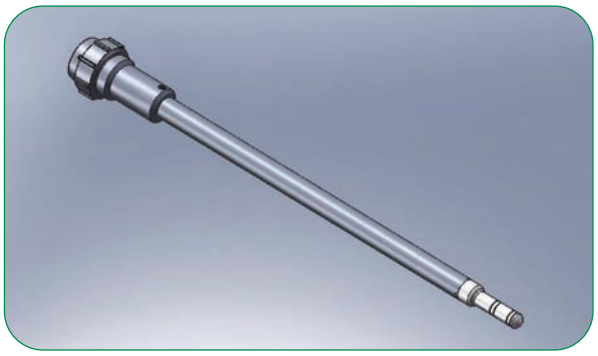
Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Probe Options

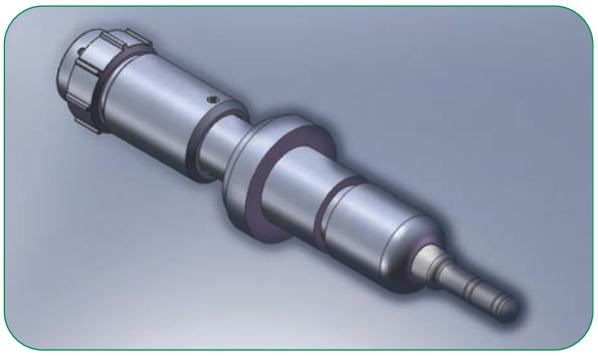
Aber Instruments has a wide range of probes to suit all applications, they are available in 12mm diameter ideal for small bio-reactors and 25mm diameter for larger vessels.

All probes are Electropolished and Passivated. Options for USP class VI and FDA CFR21 177 certificates.

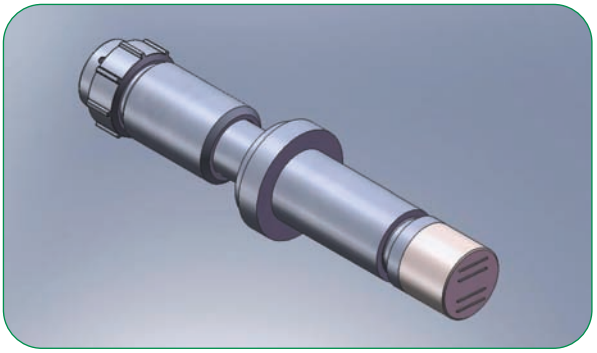
All probes are available fully certified.



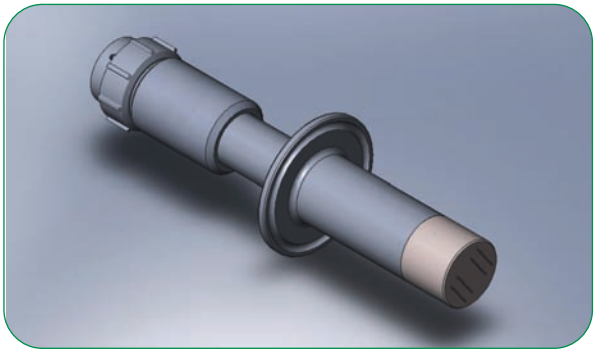
12mm Annular Probe



25mm Annular Probe



25mm Flush Probe



Tri-clamp

All probes supplied by Aber Instruments will work in all situations, however the annular probe performs best in highly aerated systems. In cell culture in large vessels the flush probe is more robust and there is little or no advantage using the annular probe.

25mm - Large vessels

	Cell Culture	Microbial	Bacterial
25mm Annular	Alternative	Recommended	Recommended
25mm Flush	Recommended	Alternative	Alternative

12mm - Small vessels, top mounted

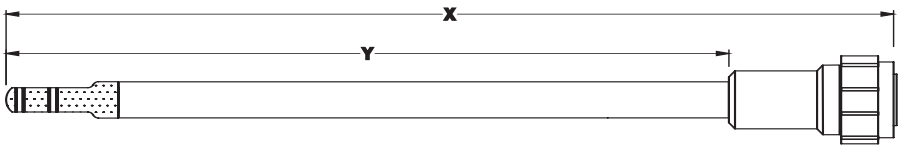
	Cell Culture	Microbial	Bacterial
12mm Annular	Recommended	Recommended	Recommended

ABER™ INSTRUMENTS

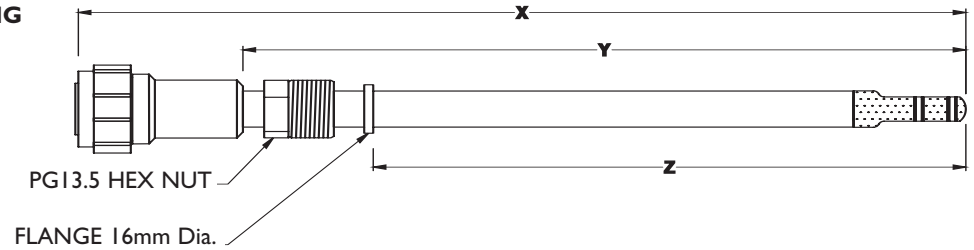
Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

12mm Annular probes

STRAIGHT



PG13-5 FITTING



STRAIGHT PROBES

Part Number with certificate	Part number without certificate	Description	Serial number prefix	Overall Dimensions X	Y	Z
1922-52	1861-52	Probe Annular Electrodes 12 x 100mm Stainless Steel / *Fortron	TBRA	193	143	-
1923-52	1856-52	Probe Annular Electrodes 12 x 200mm Stainless Steel / *Fortron	TBMA	293	243	-
1925-52	1855-52	Probe Annular Electrodes 12 x 300mm Stainless Steel / *Fortron	TBLA	393	343	-
1927-52	1851-52	Probe Annular Electrodes 12 x 450mm Stainless Steel / *Fortron	TBXA	543	493	-

PG13-5 PROBES

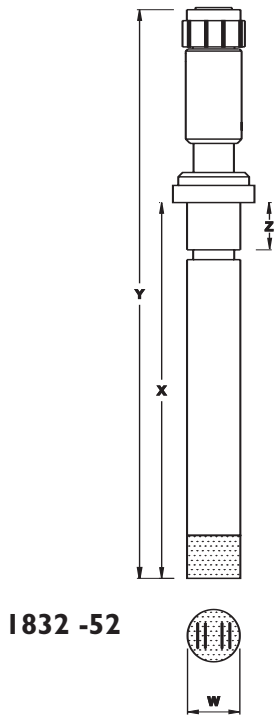
				X	Y	Z
1924-52	1859-52	Probe Annular Electrodes 12 x 200mm Stainless Steel / *Fortron	TBMAX	293	243	200
1926-52	1869-52	Probe Annular Electrodes 12 x 300mm Stainless Steel / *Fortron	TBLAX	393	343	300
1928-52	1862-52	Probe Annular Electrodes 12 x 450mm Stainless Steel / *Fortron	TBRAX	543	493	400

* Fortron PPS (polyphenylene sulphide). This material has excellent strength and resistance to repeated steam sterilisations and has USP class VI and FDA 21 CFR177.2415 accreditation for repeated food contact.

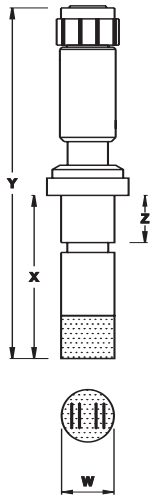
ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

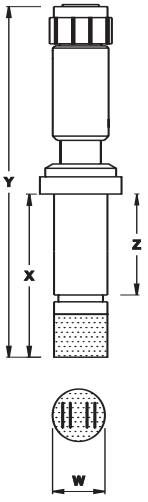
25mm probes



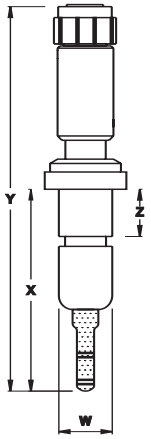
1832 -52



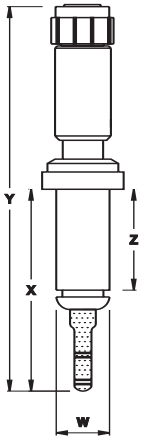
1893 -52



1833 -52



1852 -52



1858 -52

Probes

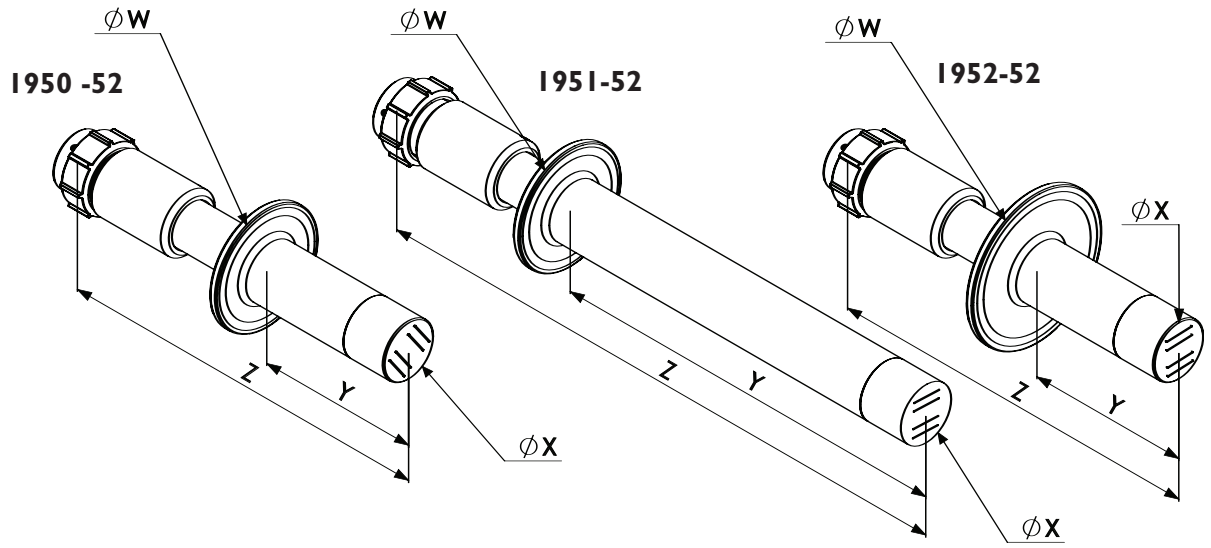
Part Number with certificate	Part number without certificate	Description	Serial number prefix	Approx Dimensions			
				W	X	Y	Z
1934-52	1832-52	Probe Flush Electrodes 25 x 175mm Stainless Steel / Fortron	SBKFS	25	175	265	22
1932-52	1893-52	Probe Flush Electrodes 25 x 75mm Stainless Steel / Fortron	SBSFS	25	75	165	22
1933-52	1833-52	Probe Flush Electrodes 25 x 75mm Stainless Steel / Fortron for use with some Braun safety ports	SBSFB	25	75	165	47
1920-52	1852-52	Probe Annular Electrodes 25 x 96mm Stainless Steel / Fortron	SBRAS	25	96	180	22
1921-52	1858-52	Probe Annular Electrodes 25 x 96mm Stainless Steel / Fortron for use with some Braun Safety ports	SBRAB	25	96	180	47

* Fortron PPS (polyphenylene sulphide). This material has excellent strength and resistance to repeated steam sterilisations and has USP class VI and FDA 21 CFR177.2415 accreditation for repeated food contact.

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Tri-clamp Probes



Probes

Part Number with certificate	Part number without certificate	Description	Serial number prefix	Approx Dimensions			
				W	X	Y	Z
1929-52	1951-52	Probe Flush Electrodes 25 x 175mm Stainless Steel / *Fortron with 1-1.5 inch Tri-clamp flange with certificate	SBKFA	50.4	25	175	260
1930-52	1950 -52	Probe Flush Electrodes 25 x 70mm Stainless Steel / *Fortron with 1-1.5 inch Tri-clamp flange with certificate	SBJFA	50.4	25	70	163
1931-52	1952 -52	Probe Flush Electrodes 25 x 70mm Stainless Steel / *Fortron with 2 inch Tri-clamp flange with certificate	SBJFF	63.9	25	70	163

* Fortron PPS (polyphenylene sulphide). This material has excellent strength and resistance to repeated steam sterilisations and has USP class VI and FDA 21 CFR177.2415 accreditation for repeated food contact.

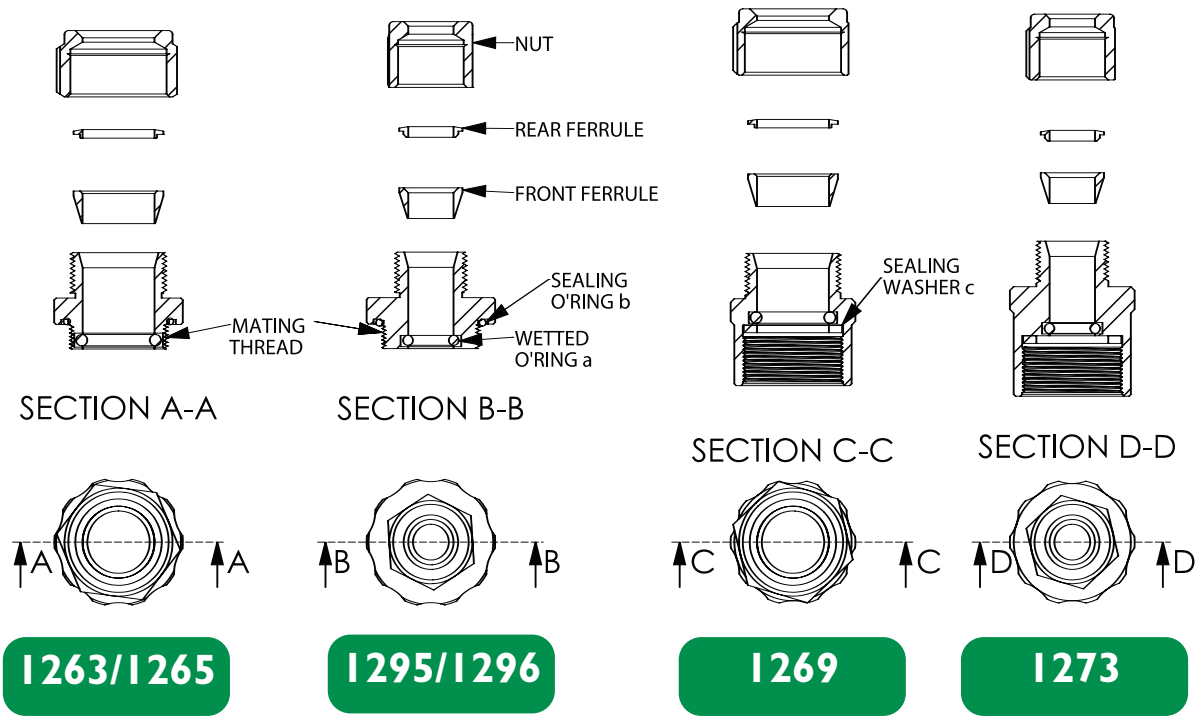
ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Port Adaptors

The port adaptors are designed to allow the 12mm straight Aber probes to be fitted into either Braun or Applikon 19mm (3/4") top plate, female port fitting.

The New Brunswick version is similar but fits a male threaded port on either the top plate or side entry port.



Part No.	Description	Wetted O'ring 'a'	Sealing O'ring 'b'	Sealing washer 'c'	Mating thread
1265-12	19mm Braun Sartorius Adaptor	Silicone FDA 18 x 30	EPDM 26.7 x 1.78		26 x 1mm PITCH
1295-12	12mm Braun Sartorius Adaptor	Silicone FDA 10.78 x 2.62	EPDM 26.7 x 1.78		26 x 1mm PITCH
1263-12	19mm Applikon Adaptor	Silicone FDA 18 x 3.0	EPDM 26.7 x 1.78		3/4" BSP
1296-12	12mm Applikon Adaptor	Silicone FDA 10.78 x 2.62	EPDM 26.7 x 1.78		3/4" BSP
1269-12	19mm Brunswick Adaptor	Silicone FDA 18 x 3.0		Silicone FDA 19 x 3.5 x 2	26 x 1mm PITCH
1273-12	12mm Brunswick Adaptor	Silicone FDA 10.78 x 2.62		Silicone FDA 19 x 3.5 x 2	26 x 1mm PITCH

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Probe Tester

1476-00 LCD version
1476-60 LCD version renewal certificate
1475-00 Non LCD version
1475-60 Non LCD version renewal certificate
1476-09 Probe tester manual
(for LCD version and non LCD version)

The Aber Instruments Probe Tester has been specially designed to carry out checks on the integrity of any type of probe used with the full range of Biomass Monitors 200, 210, 220, 230 & 920. Both testers are supplied new with a calibration certificate.

The tester will automatically run through a sequence of tests checking a probe for internal corrosion and leakage between the electrodes. An additional test cable allows the user to check the continuity between each electrode and the Head Amplifier socket. The complete test procedure checks the health of a probe and its ability to perform correctly.

There are two versions of the Probe Tester; 1475-00 is a simple pass or fail device intended for production environments, 1476-00 also has a LCD display that allows the user to quantify and track the changes of probe condition.

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Validation Certification

All these validation packages include Aber Instruments generated release, calibration, IOQ documentation and the probe certificate of conformance suitable for compliance in pharmaceutical production environments.

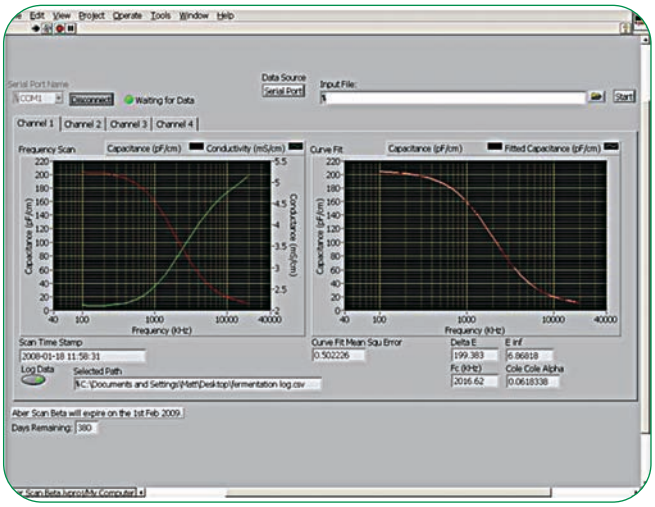
The Instruments are shipped with appropriate calibration certificates and factory completed IOQ acceptance documents along with a blank set of IQ and OQ documents to be used to replicate these tests at the client site.

2900-62	**Biomass Monitor 200 (Lab version and Panel mount)**
	Probe Certificate of Conformance
	IOQ Aber Instruments Factory Acceptance Certification
	Probe Simulator Certification
2400-62	**Biomass Monitor 210**
	Probe Certificate of Conformance
	IOQ Aber Instruments Factory Acceptance Certification
	Probe Simulator Certification
2200-62	**Biomass Monitor 220 (up to 4 channels)**
	Probe Certificate of Conformance
	IOQ Aber Instruments Factory Acceptance Certification
	Probe Simulator Certification
2700-62	**Biomass Monitor 230 (up to 4 channels)**
	Probe Certificate of Conformance
	IOQ Aber Instruments Factory Acceptance Certification
	Probe Simulator Certification
9200-62	**Live Cell Analyser 920, off-line only**
	IOQ Aber Instruments Factory Acceptance Certification
9205-62	**Live Cell Analyser 920, on-line and off-line**
	IOQ Aber Instruments Factory Acceptance Certification
	Probe Certificate of Conformance
	Probe Simulator Certification
2350-60	Biomass Monitor Probe Simulator Certification
1000-61	Probe Certificate of Conformance
1000-62	Probe OQ Documentation
1476-60	Probe Tester LCD version renewal certificate
1475-60	Probe Tester non-LCD version renewal certificate

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

AberScan Software

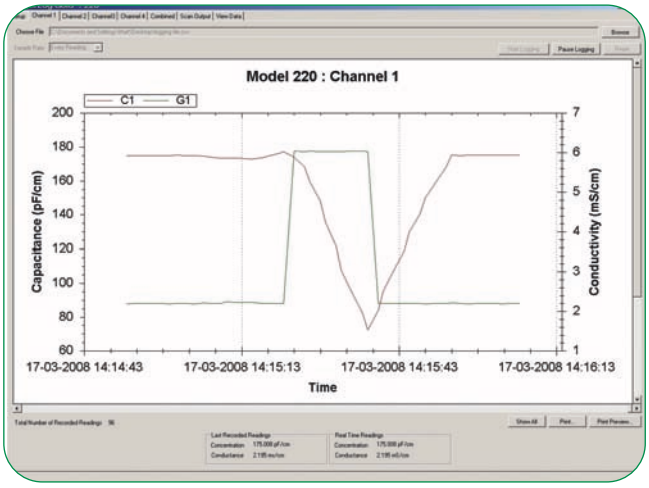


The AberScan Software is for use specifically with the Biomass Monitor Models 210 & 220 to record frequency scan data. The software records the capacitance and conductance values continuously. The spectra produced are analysed to derive additional process parameters including dielectric increment, cole-cole alpha and critical or characteristic frequency (fc) that can be used as sign posts, or for monitoring key events, during the fermentation process.

Designed to run with Windows XP or Vista.

4500-00 AberScan Software package
4500-07 AberScan Software
4500-09 AberScan Software Manual

AberLog Gold Software



AberLog Gold is a data-logging software package that can used with most Biomass Monitor systems including models 210 ,220, 230, & 920.

It has a range of features including logging of capacitance and conductivity measurements over user defined logging intervals, multiple channel logging, data manipulation and exporting of data in .csv format for use with other graphical packages.

Designed to run with Windows XP or Vista.

4600-00 AberLog Gold Software package
4600-07 AberLog Gold Software
4600-09 AberLog Gold Software Manual

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Extension Cables

1601-24/05	5 metre extension cable SHAX 5
1601-24/10	10 metre extension cable SHAX 10
1601-24/15	15 metre extension cable SHAX 15
1601-24/20	20 metre extension cable SHAX 20
1601-24/25	25 metre extension cable SHAX 25

Cables are available in lengths up to 100 metres, intermediate lengths can be made to order

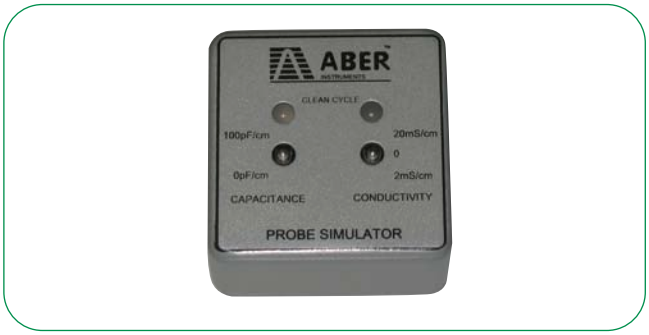
ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Head Amplifier

2300-00 Head Amplifier with 2 Metre Cable

Probe Simulator



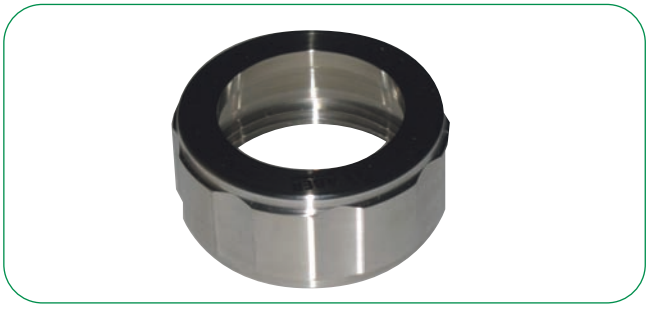
2350-00 Probe Simulator

Ground Straps

2113-15 Ground strap for Head Amplifier 12mm probes

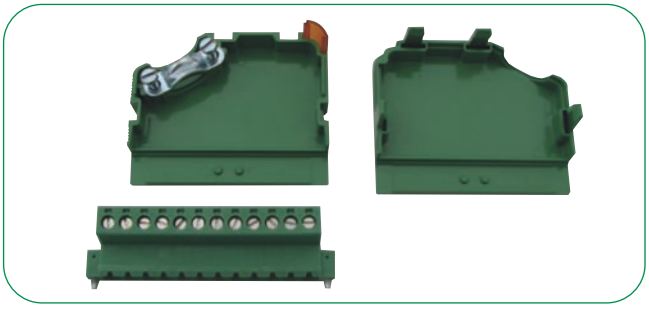
1116-15 Ground strap for Head Amplifier 25mm probes

Retaining Ring



1015-02 25mm Probe retaining ring (for Stainless Steel probes)

Phoenix Connectors



1660-06 4W Phoenix connector & Backshell kit for BM200 (4-20 mA output)

1662-06 12W Phoenix connector & Backshell kit for BM220 (4-20 mA output)

1663-06 14W Phoenix connector & Backshell kit for BM220 (PLC connectors)

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Manuals

2900-09 Biomass Monitor 200 User Manual
2400-09 Biomass Monitor 210 User Manual
2200-09 Biomass Monitor 220 User Manual
2700-09 Biomass Monitor 230 User Manual
9200-09 Live Cell Analyser 920 User Manual
1476-09 Probe Tester Manual

Misc spares

1901-06 Pipette 0 -10 ml
1902-06 10ml Pipette Tips (Pack of 25)
1118-06 Probe O-ring, BS210 FDA approved silicone
1075-02 25mm Blanking plug, stainless steel

General Specifications all Biomass Instrumentation 19

	Instrument Type					
Specification	Lab 200	PM200	BM210	BM220	BM230	LCA920
Capacitance range			(note 1)			
0 to 200pF/cm	yes	yes	yes	yes	yes	yes
0 to 400pF	no	no	yes	yes	yes	yes
Resolution display	0.1pF/cm	0.1pF/cm	0.1pF/cm	0.1pF/cm	0.1pF/cm	0.1pF/cm
Detection level for typical applications						
Microbial (g/l)	0.02 - 0.5g/l	0.02 - 0.5g/l	0.02 - 0.5g/l	0.02 - 0.5g/l	0.02 - 0.5g/l	0.02 - 0.5g/l
Cell culture (cells/ml)	10^4 - 10^5	10^4 - 10^5	10^4 - 10^5	10^4 - 10^5	10^4 - 10^5	10^4 - 10^5
Conductivity range						
0 to 40mS/cm	yes	yes	yes	yes	yes	yes
Optional						
0 to 80mS/cm	yes	yes	yes	yes	yes	yes
Number of channels	1	1	1	1 to 4	1 to 4	2 (note 2)
Communications						
4 to 20mA	yes	yes	yes (note 3)	yes (note 3)	yes	yes
RS232	no	no	yes	yes	yes	yes
USB 2	yes	yes	no	no	no	no
Printer	no	no	yes	yes	no	yes
Options						
Profibus	yes	yes	no	no	yes	no
Devicenet	yes	yes	no	no	yes	no
Other options available						
PC Software (optional)	yes	yes	yes	yes	no	no
Power Supply	110-230V a.c.	110-230V a.c.	110-230V a.c.	110-230V a.c.	110-230V a.c.	110-230V a.c.
Environmental						
Size (mm)	270 W	270 W	310 W	310 W	400 H	370H
Height x Width x Depth	90 H 200 D	90 H 200 D	150 H 310 D	150 H 310 D	400 W 200 D	200 W 500 D
IP rating	IP40	IP65 front panel	IP30	IP30	IP65	IP40
Weight (Kg)	1.65kg	1.65kg	6.0kg	6.0kg	12kg	7.85kg

Notes

1. Microbial: 1pF/cm = 0.5 to 5g/l Cell culture: 1pF/cm = 10^4 to 10^6 cells/ml
2. 10ml sample cell and 1 on-line input.
3. Can be configured for 0 to 20mA

Head Amplifier

(All instruments) Size in mm: 65W x 50H x 150D. Weight: 1.0kg

ABER™ INSTRUMENTS

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**

Aber Instruments Limited
5, Science Park, Aberystwyth, Ceredigion SY23 3AH, UK.
Telephone: +44 (0) 1970 636300. Fax: +44 (0) 1970 615455.
E-mail: sales@aberinstruments.com **Website: www.aberinstruments.com**